Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently amended): A cardiac conduit system comprising:

an implantable cardiac conduit adapted for carrying blood flow to bypass a conduit of a patient's ~~patient'~~ heart when implanted in the patient, wherein said cardiac conduit is adapted for carrying blood flow to bypass valve aplasia or severe stenosis of the patient's heart and said cardiac conduit includes a valve;

at least one sensing device chronically located within said cardiac conduit, said sensing device comprising of at least one inductor coil and at least one means for monitoring one or more physiological parameters for diagnosis of the condition of said cardiac conduit after said cardiac conduit is implanted in the patient, with optional electronic components; and

a non-implantable readout device comprising at least one inductor coil allowing electromagnetic telecommunication and electromagnetic wireless powering of said sensing device through said at least one inductor coil of said sensing device.

Claim 2 (Previously presented): The cardiac conduit system of claim 1 wherein said at least one sensing device comprises of at least one capacitive sensor.

Claim 3 (Previously presented): The cardiac conduit system of claim 1 wherein said at least one sensing device includes a battery.

Claim 4 (Previously presented): The cardiac conduit system of claim 4 wherein said battery is rechargeable using wireless means.

Claim 5 (Previously presented): The cardiac conduit system of claim 1 wherein said physiological parameters include pressure.

Claim 6 (Previously presented): The cardiac conduit system of claim 1 wherein said physiological parameters include pressure gradient.

Claim 7 (Previously presented): The cardiac conduit system of claim 1 wherein said cardiac conduit is adapted to be implanted in the patient so that after said cardiac conduit is implanted in the patient said at least one sensing device measures at least one of the following pressures: pulmonary artery, left

atrium, right atrium, left atrium appendage, right atrium appendage, mean left atrium pressure, mean right atrium pressure, differential pressure between left and right atrium.

Claim 8 (Previously presented): The cardiac conduit system of claim 7 further comprising means for calculating change of pressure over time, dp/dt.

Claim 9 (Previously presented): The cardiac conduit system of claim 1 wherein said cardiac conduit is chosen from the group consisting of homograft, heterograft, and artificial conduits.

Claim 10 (Previously presented): The cardiac conduit system of claim 1 wherein said at least one sensing device is located at one end of said cardiac conduit.

Claim 11 (Previously presented): The cardiac conduit system of claim 10 wherein said at least one sensing device comprises a second sensing device at a second end of said cardiac conduit.

Claim 12 (Previously presented): The cardiac conduit system of

claim 1 wherein said at least one sensing device is adapted to indicate occlusion of said cardiac conduit.

Claim 13 (Previously presented): The cardiac conduit system of claim 12 wherein said at least one sensing device comprises a second sensing device and said sensing devices are located on said cardiac conduit so as to be operable for locating the occlusion.

Claim 14 (Previously presented): The cardiac conduit system of claim 1 wherein said at least one sensing device comprises a second sensing device and said sensing devices are adapted for measuring flow rates through said cardiac conduit.

Claim 15 (Previously presented): The cardiac conduit system of claim 1 wherein data from said at least one sensing device are useful to estimate time-to-failure within said cardiac conduit.

Claim 16 (Previously presented): The cardiac conduit system of claim 1 wherein said at least one sensing device and said readout device are adapted for use for one or more of the following diagnosis: assessment of

stenosis, assessment of occlusion assessment of inefficiency of said cardiac conduit.

Claim 17 (Previously presented): The cardiac conduit system of claim 1 wherein one or more of the following schemes are used to couple said at least one sensing device to said readout device: resonant, passive, active.

Claim 18 (Previously presented): The cardiac conduit system of claim 1 wherein said one or more physiological parameters are one or more of the following parameters: pressure, temperature, flow, blood composition, blood gas content, chemical composition, chemical concentration, acceleration, vibration.

Claim 19 (Currently amended): The cardiac conduit system of claim 1 wherein said at least one sensing device and said readout device are adapted for use for one or more of the following applications: early diagnosis of stenosis in said cardiac conduit, early diagnosis of occlusion in said cardiac conduit, early diagnosis inefficiency of said cardiac conduit, early diagnosis of congenital heart diseases, congestive heart failure, and related conditions, early intervention in treatment of congenital heart diseases, congestive heart failure,

and related conditions, remote monitoring of patients with congenital heart diseases, congestive heart failure, and related conditions, tailoring of medications, heart disease management, identification of complications from the condition of said cardiac conduit in patients with congenital heart diseases, congestive heart failure, and related conditions, identification of complications from the condition of said cardiac conduit in patients with congenital heart diseases, congestive heart failure, and related conditions, treatment of complications from the condition of said cardiac conduit in patients with congenital heart diseases, congestive heart failure, and related conditions, treatment of complications from the condition of said cardiac conduit in patients with congenital heart diseases, congestive heart failure, and related conditions, feedback regarding the impact of medication on the heart, reduction in frequency and severity of hospitalizations due to congenital heart diseases and congestive heart failure, reduction in frequency and severity of hospitalizations due to congenital heart diseases and congestive heart failure, identification of mitral valve stenosis, and treatment of mitral valve stenosis including surgery and balloon angioplasty,

Claim 20 (Currently amended): The cardiac conduit system of claim 1 wherein said readout device is capable of performing one or more of the

following: remote monitoring of said cardiac conduit in heart disease patients, including home monitoring, monitoring of said cardiac conduit in heart disease patients with telephone-based (or similar method) data and information delivery, monitoring of said cardiac conduit in heart disease patients with wireless telephone-based (or similar method) data and information delivery, monitoring of said cardiac conduit in heart disease patients with web-based (or similar method) data and information delivery, closed-loop drug delivery to treat heart disease, closed-loop tuning of medical systems to treat heart disease, congestive heart failure, or congenital heart disease related conditions, warning systems for critical worsening of said cardiac conduit in heart disease patients, portable or ambulatory monitoring or diagnostic systems, battery-operation capability, data storage, reporting global positioning coordinates for emergency applications, communication with other medical devices including pacemakers, defibrillator, implantable cardioverter defibrillator, implantable drug delivery systems, non-implantable drug delivery systems, and wireless medical management systems.

Claim 21 (Previously presented): The cardiac conduit system of claim 1 wherein said at least one sensing device comprises means for anchoring said at least one sensing device to said cardiac conduit.

Claim 22 (Canceled)

Claim 23 (Previously presented): The cardiac conduit system of claim 21, wherein said anchoring means comprises at least one anchoring mechanism used in one or more of the following: septal occluder devices, left atrial appendage occluders, cardiac pacing leads, screws, tines, stents.

Claim 24 (Previously presented): The cardiac conduit system of claim 21 wherein said anchoring means is a part of said cardiac conduit.

Claims 25 through 28 (Canceled)

Claim 29 (Previously presented): The cardiac conduit system of claim 21 wherein said anchoring means is a helical screw.

Claim 30 (Previously presented): The cardiac conduit system of claim 21 wherein said anchoring means is a tine.

Claim 31 (Previously presented): The cardiac conduit system of claim 21 wherein said anchoring means is made from one or more materials

chosen from the group consisting of nitinol, teflon, stainless steel, polymer, titanium, and biocompatible metals.

Claim 32 (Previously presented): The cardiac conduit system of claim 1 wherein said at least one sensing device is augmented with one or more actuators chosen from the group consisting of thermal generators, voltage sources, current sources, probes, electrodes, drug delivery pumps, valves, meters, microtools for localized surgical procedures, radiation emitting sources, defibrillators, muscle stimulators, and pacing stimulators.

Claim 33 (Previously presented): The cardiac conduit system of claim 1 wherein said cardiac conduit system is part of a closed-loop medical treatment system.

Claim 34 (Previously presented): The cardiac conduit system of claim 1 wherein at least a portion of said at least one sensing device is coated with one or more layers of thin coatings.

Claim 35 (Previously presented): The cardiac conduit system of claim 34 wherein the one or more layers of thin coatings are formed of one or

more coating materials chosen from the group consisting of silicone, hydrogels, parylene, polymer, nitrides, oxides, nitric-oxide generating materials, carbides, silicides, and titanium.

Claim 36 (Canceled): The cardiac conduit system of claim 1 wherein said cardiac conduit is adapted for carrying blood flow to bypass valve aplasia or severe stenosis of the patient' heart, and said cardiac conduit includes a valve.

Claim 37 (Currently amended): The cardiac conduit system of claim 1 ~~claim 36~~ wherein said cardiac conduit system is incorporated into a closed-loop system for control of said valve in said cardiac conduit.

Claim 38 (Currently amended): The cardiac conduit system of claim 1 ~~claim 36~~ wherein said cardiac conduit system is incorporated into an open-loop system for control of said valve in said cardiac conduit.